

★JANK/ P36;S02 2002-330443/37 ★CA 2305633-A1
GPS data collection method by collecting GPS data while wearing data-logging recorder device during outdoor training or competitive activity, analyzing localization data for transfer onto mapping software and presenting data (Eng)

JANKOWSKI T 2000.04.25 2000CA-2305633

T01 W04 W06 (2001.10.25) G01S 5/14, A63B 71/06, G06F 17/40

Addnl. Data: PLAMONDON G (PLAM/)

Novelty: The method includes collecting GPS data while wearing the data-logging recorder device during an outdoor training or competitive activity, analyzing localization data for transfer onto a mapping software and presenting the data of various participants in a comparative way.

Detailed Description: INDEPENDENT CLAIMS are also included for the following:

- (1) a temperature and altitude collection method;
- (2) a GPS tracking and collecting method;
- (3) a compact data-logging device. The device (100) is equipped with LEDs (104) to provide the competitor information about the operational state of the device like ON/OFF, initialization completed, acquired download state. There are basic buttons on unit to activate (101) and select (102) the operational mode. The GPS antenna (105) is integrated in the unit but it is also possible to attach an external antenna with the antenna connector (103).

Use: Uses global position systems (GPS) and physical sensor technologies to capture and store into individual portable devices specific data collected about each participant during an outdoor event involving several participants, such as military training, competitions or training in adventure racing, cross country running, skiing, mountain biking, sailboat racing, orienteering, racing, etc.

Advantage: The portable device is small, rugged and waterproof and incorporates a GPS receiver. The device does not display any information that could help the competitor. Only vital information are available (like On/ Off status). The device is portable, rugged and waterproof. The device displays only vital information about the device operation status. the device captures and stores into a memory at selectable interval the date, the time, the geographical position, the temperature and the altitude (with pressure sensor). The device can download previously captured data using encryption scheme into a computer. Post-competition analysis is possible using downloaded data from multiple data loggers.

Description of Drawing(s): The figure shows front and side views of the outdoor competitor GPS-based Data Logger.

Operational mode activation button 101

Operational mode select button 102

Antenna connector 103

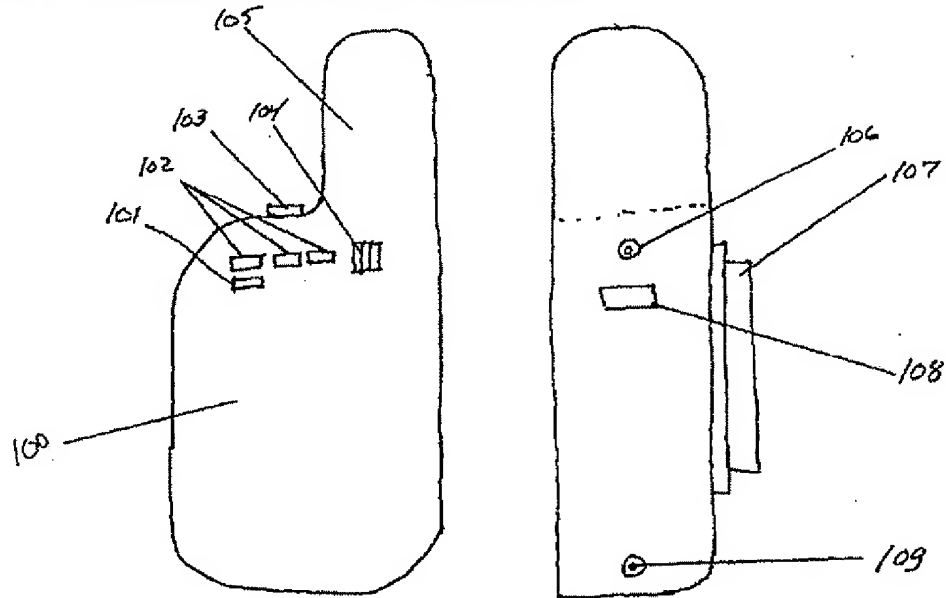
LEDs 104

GPS antenna 105

(7pp Dwg.No.1b, 1c/3)

N2002-259317

S02-B08C; T01-J07A; W04-B; W06-A03A5C





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CA 2305633 A1 2001/10/25

(21) **2 305 633**

(12) **DEMANDE DE BREVET CANADIEN
CANADIAN PATENT APPLICATION**

(13) **A1**

(22) Date de dépôt/Filing Date: 2000/04/25

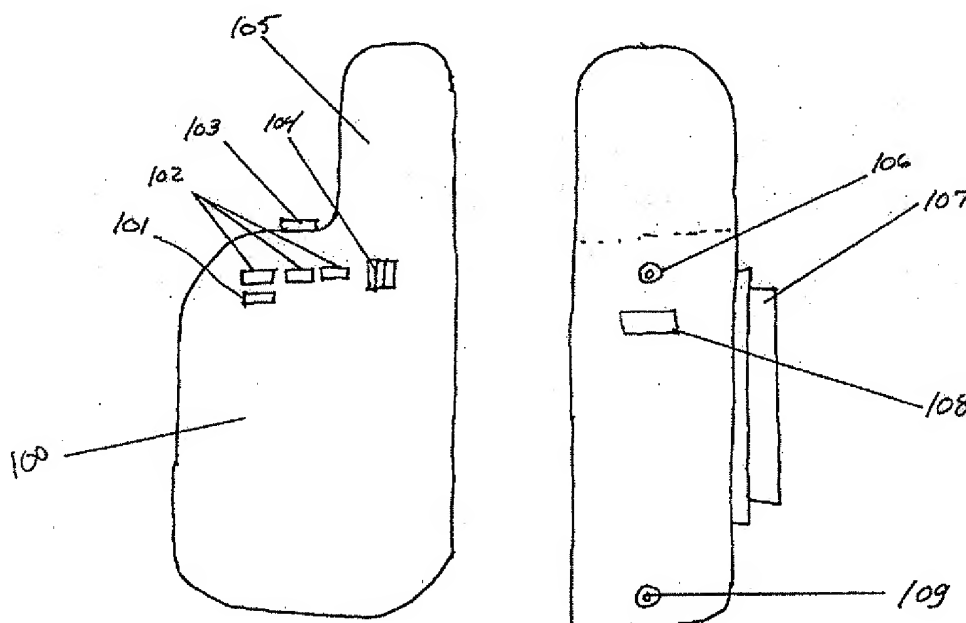
(41) Mise à la disp. pub./Open to Public Insp.: 2001/10/25

(51) Cl.Int.⁷/Int.Cl.⁷ G01S 5/14, A63B 71/06, G06F 17/40

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(54) Titre : ENREGISTREUR DE DONNEES GPS POUR COMPETITION EN PLEIN AIR
(54) Title: OUTDOOR COMPETITOR GPS-BASED DATA LOGGER



(57) Abrégé/Abstract:

The invention uses Global Positioning System (GPS) and physical sensors technologies for capturing and storing into individual portable devices specific data collected about each participant during an outdoor event involving several participants, such as military training, competitions or training in adventure racing, cross-country running, skiing, mountain biking, sailboat racing, snowmobile racing, orienteering, racing, etc. After the outdoor event is completed, the captured data from each individual portable device is transferred to the Internet or to any other type of multi-media viewing system through a computer for comparative viewing and analysis of the performances and trajectories of all participants. The data may be displayed on a geographical map detailing the peculiarities of the outdoor site environment.

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TITLE of invention: Outdoor Competitor GPS-Based Data Logger**Description:****1. Field of invention**

The invention relates to the application of Global Positioning System (GPS) and physical sensor technologies for capturing and storing specific data of a competitor during an outdoor competition such as adventure racing, cross-country running, skiing and mountain biking, sailboat racing, snowmobile racing and so forth. After the competition, the captured data is transferred to a computer and the internet for competition analysis.

2. Background of the invention

Outdoor competition for professional and amateur such as adventure racing, cross-country running, skiing and mountain biking, sailboat racing, snowmobile racing are becoming increasingly popular as information about these competitions is now available worldwide with the Internet.

However, once the competition is over, there is no valuable information available about what happen to each competitor *during* the race. Usually, only total race time and ranking information are available. Post-race analysis (individual and comparative) for future improvement and appreciation is not possible since relevant data was not collected during the competition.

GPS receiver and GPS antenna are now highly sensitive and accurate. With the newer versions, it is not necessary to wear a cumbersome GPS antenna on top of your body to capture the GPS satellite signals. The device (including GPS receiver and antenna) can be carried on the back of a competitor and the device will still continue to receive enough signal from different satellites to clearly establish the geographical position of the device.

Thus, there exists a need for a portable device that is small, rugged and waterproof which incorporate a GPS receiver, an atmospheric pressure sensor and a temperature sensor. Data from the GPS receiver and sensors is captured at selectable interval and stored into the device memory. The device does not display any information that could help the competitor. Only vital informations are available (like On/Off status). After the race, the data from each device used during the competition is downloaded into a computer. The computer (with appropriate software) provides competition analysis. The results of the analysis are then posted and made available on the Internet web site of the competition.

The unit can also be used for training in preparation for a competition. The competitor carries or wears the unit during training session. After the training session, data is downloaded into a personal computer for analysis using the appropriate software.

3. Summary of the invention**Objects of the present invention are:**

- 1- To provide a device which is portable, rugged and waterproof.
- 2- To provide a device which displays only vital information about the device operational status.
- 3- To provide a device which captures and stores into memory at selectable interval the date, the time, the geographical position, the temperature and the altitude (with pressure sensor).
- 4- To provide a device which can communicate with an external computer using infra-red communication or serial communication.
- 5- To provide a device which is capable of downloading previously captured data using an encryption scheme into a computer.
- 6- To provide a system by which post-competition analysis is possible using downloaded data from multiple data loggers.

Brief description of the drawings:

Figure 1b is the front view of the Outdoor Competitor GPS-Based Data Logger

Figure 1c is the side view of the Outdoor Competitor GPS-Based Data Logger

CA 02305633 2001-07-27

Claims

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

- 1) A method comprising the steps of
 - a) Collecting GPS data while wearing the data-logging recorder device during an outdoor training or competitive activity.
 - b) Analysing localisation data for transfer onto a mapping software.
 - c) Presenting the data of the various participants in a comparative way.
- 2) A method comprising the steps of
 - a) Collecting temperature and altitude data while wearing the data-logging recorder device during an outdoor training or competitive activity.
 - b) Downloading and analysing data which provides information for three-dimensional mapping of the activity and temperature variation at all time for all individuals.
 - c) Presenting the data of the various participants in a comparative way.
- 3) A method of tracking and collecting GPS data from multiple individuals engaged in a competition or a training session
 - a) Displaying concurrent routes taken by individual units.
 - b) Positioning individual units on a map support for the duration of the activity for comparison purposes.
 - c) Allowing for the performance comparison of speed, distance, altitude and time of each individual engaging in the activity.
 - d) Displaying the information on a multi-media system such as a personal computer, the Internet or a television.
- 4) A compact data-logging device capable of
 - a) Collecting GPS data and storing it in local memory.
 - b) Collecting temperature and altitude data and storing it in local memory.
 - c) Resisting harsh outdoor conditions.

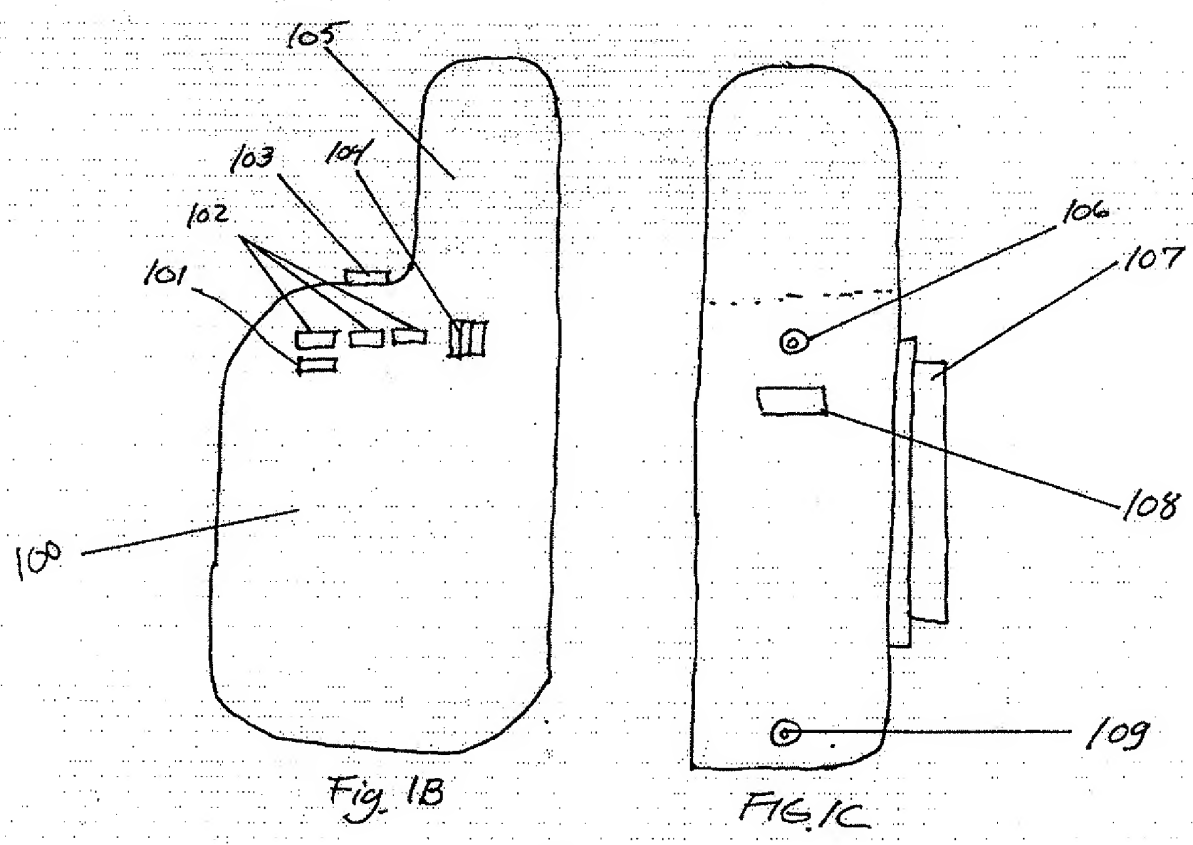


Fig. 1

